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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,339	06/26/2003	Jarmo Ilmari Maula	11429/13:3	9277

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EXAMINER

LEE, KEVIN L

ART UNIT PAPER NUMBER

3753

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/609,339

Applicant(s)

MAULA ET AL.

Examiner

KEVIN L LEE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10, 12-22, 28, 29, 31 and 34 is/are rejected.
- 7) ☒ Claim(s) 7-9, 11, 23-27, 30, 32, 33 and 35-40 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/19/03 & 1/14/05</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 12 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyamoto et al (U.S. Patent No. 5,520,001). The patent to Miyamoto et al discloses a diaphragm valve comprising a valve body having an inlet (4) and an outlet (5), a valve seat (15) and a flexible diaphragm (23). The seating surface of the valve seat is readable as contacting between 12% and 50% of the first side of the diaphragm; see Figures 3 and 4. A heater (12) is provided for heating the block (1a), therein inherently heating the medium in the valve passage; col. 5, lines 23-25.

Claims 1-4, 10, 28, 29 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Gilchrist et al (U.S. Patent No. 5,386,849). The patent to Gilchrist et al discloses a diaphragm valve comprising an elastomeric diaphragm (52) in contact with a substantial portion of the valve seat (60). As illustrated in Figure 3, the seating surface of the valve seat is readable as contacting between 12% and 50% of the first side of the diaphragm.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al in view of Hanyu et al (U.S. Patent No. 5,112,027). The diaphragm valve of Miyamoto et al lacks having a polished seating surface for the valve seat. The patent to Hanyu et al teaches the above exception in polishing the valve seat so that the valve seat is smooth to prevent leakage when the diaphragm is seated in the closed position, col. 4, lines 43-50. In view of the teaching of Hanyu et al, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the valve of Miyamoto et al to polish the valve seat so that the valve seat is smooth to prevent leakage when the diaphragm is in the closed position.

Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al in view of Watson et al (U.S. Patent No. 6,073,648). The valve of Miyamoto et al lacks having a protective coating for the diaphragm, valve passage and valve seat. The patent to Watson et al teaches the above exception in coating the valve and valve passages with a coating comprising an oxide, carbide or nitride to protect the valve elements from erosion or abrasion; see col. 3, lines 11-25 and col. 4, lines 45-55. In view of the teaching of Watson et al, it would have been obvious to one of ordinary

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skill in the art at the time of the invention to modify the valve of Miyamoto et al to have the valve, valve passages and valve seat coated with a coating of an oxide, carbide or nitride to protect the valve elements from erosion or abrasion.

Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilchrist et al in view of Turnwald et al (U.S. Patent No. 4,273,028). The diaphragm valve of Gilchrist et al lacks having a protective member between the movable plunger (16) and the stop (14) to limit the movement of the plunger. The patent to Turnwald et al teaches the above exception in providing a protective blocking member (16) between a stop (12) and a movable plunger (10). The blocking member is made of polytetrafluorethylene and serves to cushion the impact of the plunger (10), therein reducing noise, col. 6, lines 7-12. In view of the teaching of Turnwald et al, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the diaphragm valve of Gilchrist et al to include a protective blocking member formed of polytetrafluorethylene to cushion the impact of the plunger against the stop, therein reducing valve noise.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gilchrist et al in view of Otsuki (U.S. Patent No. 4,513,945). The diaphragm valve of Gilchrist et al lacks having a slide bushing disposed between the movable plunger (16) and the solenoid (18). The patent to Otsuki teaches the above exception in providing a

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bushing (22, 23) between the movable plunger (21, 20) so that the movable plunger slides smoothly as it reciprocates between the valve open and valve closed positions, col. 2, line 63 thru col. 3, line 2. In view of the teaching of Otsuki, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the valve of Gilchrist et al to include a slide bushing between the movable plunger and the solenoid to enable the plunger to slide smoothly as it reciprocates between the open and closed positions.

Allowable Subject Matter

Claims 7-9, 11, 23-27, 30, 32, 33, and 35-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN L LEE whose telephone number is (571) 272-4915. The examiner can normally be reached on MONDAY-THURSDAY.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GENE MANCENE can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MARCH 2, 2005


Kevin Lee
Primary Examiner